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APPLICATION NUMBER: 60/124,082

FILING DATE: March 12, 1999

## PRIORITY DOCUMENT

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*P. R. Grant*

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Certifying Officer

# PROVISIONAL APPLICATION COVER SHEET

A/PROV

This is a request for filing a PROVISIONAL APPLICATION under 37 CFR 1.53(b)(2).

03/12/99  
3525 U.S. PTO

Docket Number		65,153-009	Type plus sign (+) inside this box →	+
INVENTOR(S)/APPLICANT(S)				
LAST NAME	FIRST NAME	MIDDLE INITIAL	RESIDENCE (CITY AND EITHER STATE OR FOREIGN COUNTRY)	
Tame Coffey	Omar Robert	D	West Bloomfield, Michigan Canton, Michigan	
TITLE OF THE INVENTION (280 characters max)				
SAFETY MECHANISM FOR A FOLD AND TUMBLE SEAT ASSEMBLY				
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STATE	Michigan	ZIP CODE	48304	COUNTRY United States
ENCLOSED APPLICATION PARTS (check all that apply)				
<input checked="" type="checkbox"/> Specification	Number of Pages 5	<input type="checkbox"/> Small Entity Statement		
<input checked="" type="checkbox"/> Drawing(s)	Number of Sheets 3	<input type="checkbox"/> Other (specify) _____		
METHOD OF PAYMENT (check one)				
<input checked="" type="checkbox"/> A check or money order is enclosed to cover the Provisional filing fees			PROVISIONAL FILING FEE AMOUNT (\$)	
<input type="checkbox"/> The Commissioner is hereby authorized to charge filing fees and credit Deposit Account Number: _____				

3541 U.S. PTO  
03/12/99

The invention was made by an agency of the United States Government or under a contract with an agency of the United States Government.

☒ No.

☐ Yes, the name of the U.S. Government agency and the Government contract number are: \_\_\_\_\_

Respectfully submitted,

SIGNATURE



Date March 12, 1999

TYPED or PRINTED NAME Samuel J. Haidle

REGISTRATION NO. 42,619

(if appropriate)

☐ Additional inventors are being named on separately numbered sheets attached hereto

**PROVISIONAL APPLICATION FILING ONLY**

**SAFETY MECHANISM FOR  
A FOLD AND TUMBLE SEAT ASSEMBLY**

**TECHNICAL FIELD**

5                   The subject invention relates to fold and tumble seat assemblies.

**BRIEF DESCRIPTION OF THE DRAWINGS**

10                   Advantages of the present invention will be readily appreciated as  
the same becomes better understood by reference to the following detailed  
description when considered in connection with the accompanying drawings  
wherein:

Figure 1 is a side view of a seat assembly in a seating position:

Figure 2 is a side view of a seat assembly in a folded position; and

Figure 3 is a side view of a latch mechanism for the seat assembly.

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**DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT**

Referring to the Figures, wherein like numerals indicate like or  
corresponding parts throughout the several views, an automotive seat assembly is  
generally shown at 10 in Figures 1 and 2. The seat assembly 10 includes a seat  
cushion (not shown) and a seat back 12 pivotally mounted to the seat cushion.  
As appreciated, other devices such as a reclining mechanism (not shown) may be  
mounted to the seat back 12 as is well known in the art. The seat back 12 is  
pivotal between a upward or seating position (as shown in Figure 1) and a folded

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or stowed position (as shown in Figure 2). When the seat back 12 is in the folded position, the entire seat assembly 10 may pivot forwardly into a tumbled position wherein the seat back 12 and seat cushion are substantially perpendicular to a floor (not shown) of a vehicle. This type of seat assembly 10 is typically used in mini-van and sport utility type vehicles and is typically called a fold and tumble seat. The folded position of the seat back 12 and the tumbled position of the seat assembly 10 are used when added storage space is needed within the vehicle.

The seat cushion is mounted to a seat riser (not shown) which includes a pair of latches for securing the seat to the floor of the vehicle. Preferably, the latches are actuated in conjunction with the movement of the seat assembly 10. Referring also to Figure 3, a rear latch 14 is actuated as the seat back 12 moves from the seated position to the folded position. An actuation lever (not shown) is connected to the latch 14 via a first cable 16. To release the latch 14, a user folds the seat back 12 downward and then pulls on the lever. The pulling of the lever tensions the first cable 16 and pivots the rear latch 14 out of engagement with a bolt 18 within the floor. To re-secure the seat assembly 10 to the floor, the user pivots the seat assembly 10 downward and then pushes the rear latch 14 toward the bolt 18. The latch 14 automatically engages about the bolt 18 to secure the seat 10 to the floor.

As appreciated, there are a number of safety concerns when folding and tumbling the seat assembly 10. First, the release lever should not be able to actuate unless the seat back 12 is initially folded downward. In other words, the seat back 12 must be in a folded position overlying the seat cushion in order to actuate the lever and release the rear latch 14. Secondly, the seat back 12 should not be able to be pivoted back into the seating position until the latch 14 is re-secured to the floor of the vehicle. In other words, the rear latch 14 must be secured about the bolt 18 in the floor before the seat back 12 can be pivoted upward.

A single L-shaped bracket 20 is provided to accomplish both of the safety features outlined above. Referring back to Figures 1 and 2, the L-shaped bracket 20 is pivotally mounted to a support 22 extending upward from the seat cushion. The bracket 20 has a first end 24 mounted to a second cable 26. Referring also to Figure 3, the second cable 26 is in turn connected to the latch 14. Hence, movement of the actuation lever, which tensions the first cable 16 to move the latch 14, also tensions the second cable 26 connected to the bracket 20. Tensioning of the second cable 26 causes the bracket 20 to pivot about a pivot point 28 on the support 22. A second end 30 of the bracket 20 is in close proximity to the pivot point of the seat back 12.

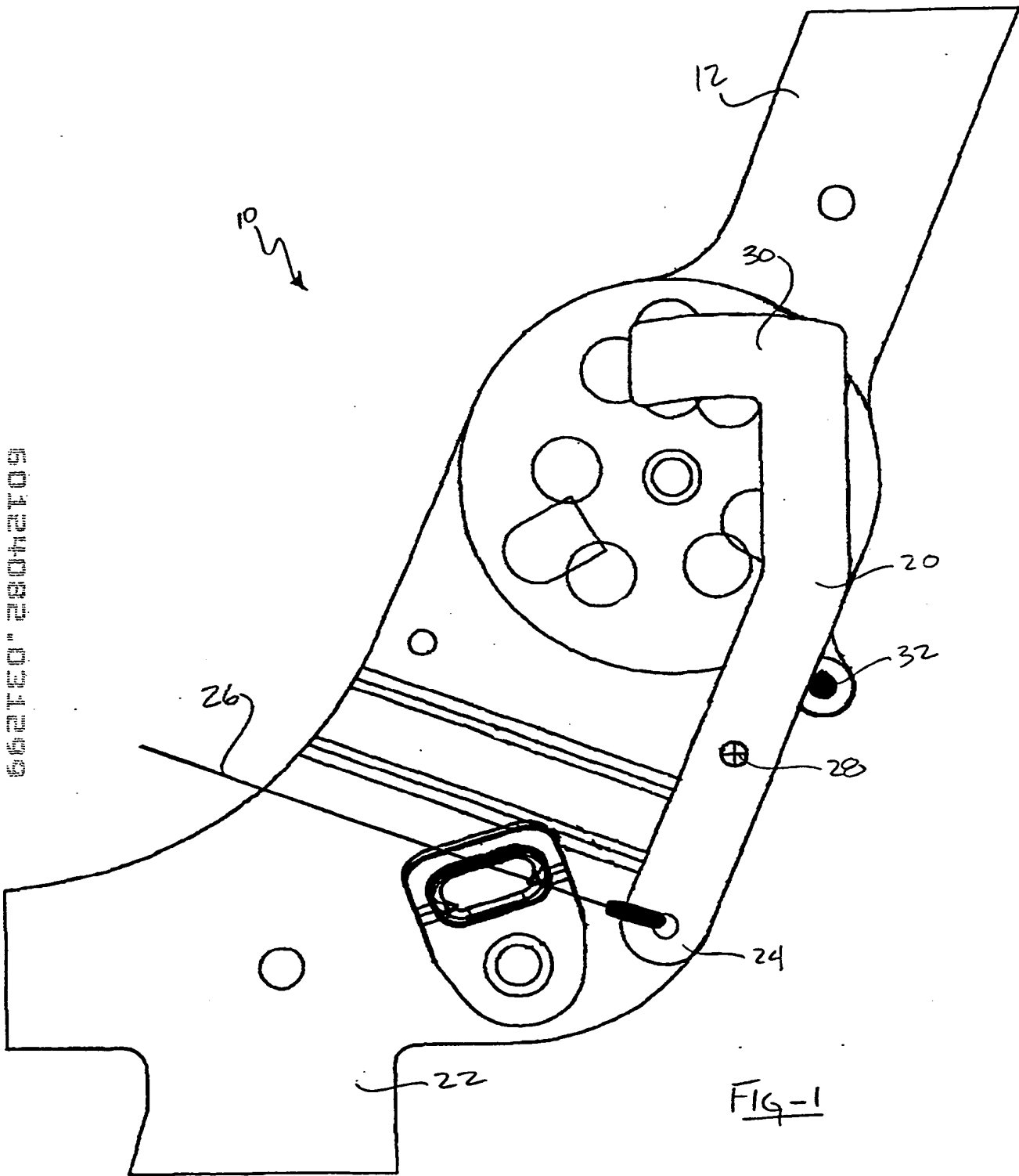
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A pin 32 is included on the seat back 12 for selective interference with the bracket 20. As shown in Figure 1, the pin 32 abuts a back side of the bracket 20 when the seat back 12 is in the seating position. The pin 32 blocks any pivoting movement of the bracket 20. As discussed above, the lever is connected to the bracket 20 via the rear latch 14. Hence, the lever cannot be actuated when the pin 32 is in blocking engagement with the bracket 20. Consequently, the rear latch 14 cannot be released. In order to move the pin 32 out of engagement with the bracket 20, the seat back 12 must be pivoted to the folded position as shown in Figure 2. Specifically, the pin 32 moves along the back side of the bracket 20 and then clears above the second end 30 of the bracket 20.

As shown in Figure 2, the pin 32 is now above the second end 30 of the bracket 20. The bracket 20 is free to pivot about the support 22 such that the actuation lever and latch 14 may be actuated. Once the lever is actuated the bracket 20 remains in the rearward position as shown in Figure 2. The bracket 20 remains in this rearward position due to the constant tensioning from the second cable 26 extending from the latch 14. In other words, the second cable 26 maintains the position of the bracket 20 when the latch 14 is in a non-engaged state (as shown in Figure 3).

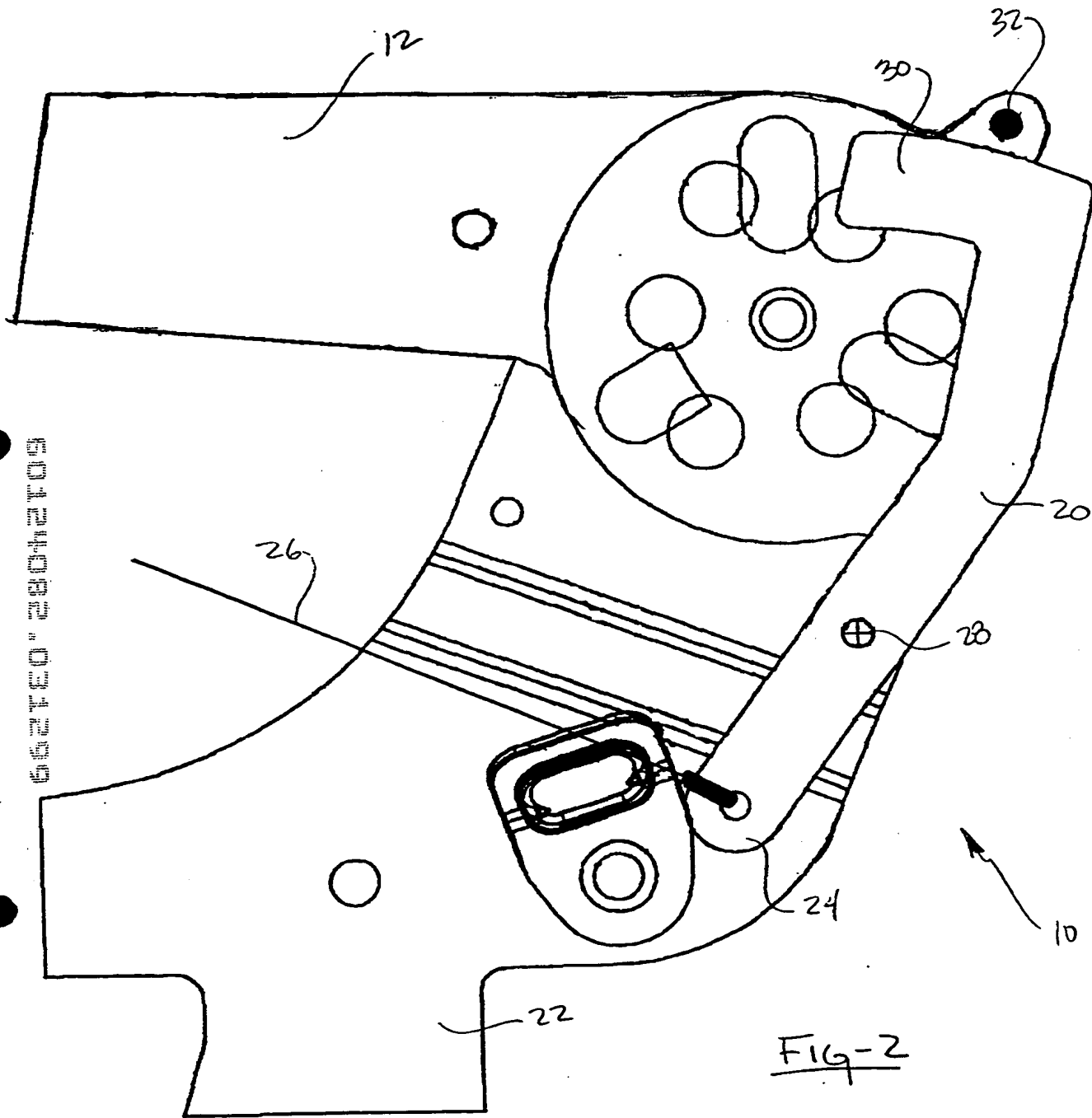
5 The seat back 12 is now secured in the folded position and cannot  
be pivoted upward toward the seating position. Specifically, the pin 32 is in  
engagement with the second end 30 of the bracket 20. The interference of the pin  
32 with the second end 30 of the bracket 20 is removed by pivoting the bracket  
10 20 back to the inward position which can only occur if the latch 14 is locked into  
position on the floor of the vehicle. In other words, the seat back 12 cannot pivot  
backward until the latch 14 is securely locked in place. Once the latch 14 is  
locked in place the tension on the second cable 26 is released and the bracket 20  
pivots back to the original position as shown in Figure 1. A return device, such  
as a spring (not shown), may be mounted to the bracket 20 to control the inward  
movement of the bracket 20. The pin 32 is now out of engagement with the  
second end 30 of the bracket 20 and the seat back 12 can return to the seating  
position as shown in Figure 1.

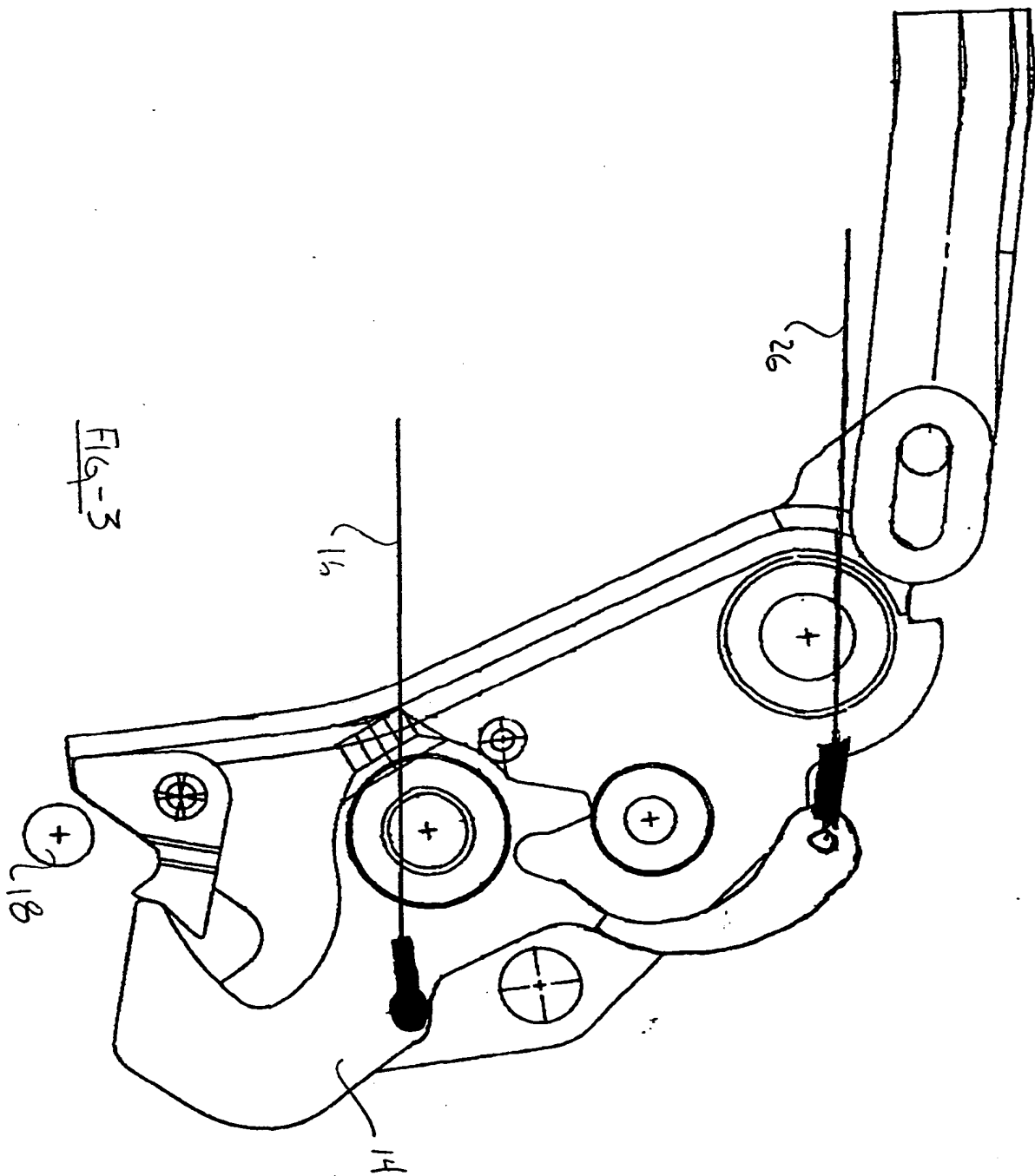
15 The invention has been described in an illustrative manner, and it  
is to be understood that the terminology which has been used is intended to be in  
the nature of words of description rather than of limitation. Obviously, many  
modifications and variations of the present invention are possible in light of the  
above teachings. It is, therefore, to be understood that the invention may be  
20 practiced otherwise than as specifically described.



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